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Photo by Claire Aubel

*Behind-the-Scenes tours are one of the Aquariums' most popular indoor programs.*

## Soundings

*Mark Joyner, Executive Vice President  
 NC Aquarium Society*

In the last issue of *Aquarium News*, we announced several new initiatives to learn more about a group that's very special to us: our members! Through focus groups, and from responses to our online survey, we attempted to get a feel for who our members are and what they like – or don't like – about the Aquariums. The findings have been interesting and will allow us to fine-tune our organization, as we attempt to offer the best possible services to our supporters.

When asked what you liked best about the Aquariums, the overwhelming answer was touch tanks and hands-on activities, especially those directed toward children. The next most frequent response was the overall condition and cleanliness of the Aquariums, followed by the friendly and knowledgeable staff.

Asked to rank the various member benefits, the hands-down favorite was free year-round admission to all three Aquariums, followed closely by free admission to 150 other zoos and aquariums around the country. Nearly half our members had taken advantage of this reciprocal benefit to visit other institutions such as the NC Zoo in Asheboro. Eighty percent indicated an interest in more "Members-Only" programs, and the same number asked for communications by email of coming events.

We're working now to put together a monthly e-newsletter, with timely information on everything from coming Aquarium programs and field trips to signing up for kids camps. If you'd like to receive these notifications, just email us at [societymail@ncaquariums.com](mailto:societymail@ncaquariums.com). From all of us at the Aquariums, thanks for your continued interest and support!

*Mark Joyner*



Logo design by Amy Kilgore

Into blogging? Log onto the Aquarium at Fort Fisher's new blog, "WaterLogged," at [ncaquarium.blogspot.com](http://ncaquarium.blogspot.com). Get more Aquarium news, information on conservation and environmental issues, and even recent activities and events. And, visitors are invited to comment. The new blog is one of many ways the Aquariums are reaching out to the online community.



## Contents for Winter 2008/09

Territory is worth defending, as these two white grunts demonstrate in the *Living Shipwreck* at the Aquarium at Pine Knoll Shores. Photo by Scott Taylor



**On the Cover:** While diving the U-352 southeast of Beaufort Inlet, Emily Fisher of Marquette, MI, came across this brittle star ambling across a cluster of coral.

**Cover Inset:** John Morillo found this alligator lounging comfortably in its exhibit in the Cape Fear Conservatory at the Aquarium at Fort Fisher.

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Photo by Brian Dorn

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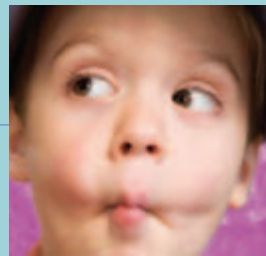
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Photo by Emmett Westbrook

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Name That Fish



Photo by John Thompson





Photo by Julie Powers

*Aquarist Meredith Owens was Eno's main caretaker. Initially, the young orphan had to be fed around the clock.*

# Three s

*By Meredith Owens, Aquarist*

The Aquarium at Pine Knoll Shores was delighted to introduce another furry face to its *River Otter* exhibit this summer. Eno, a young North American river otter, was found near White Lake, NC, in late April, orphaned by a car accident that killed his mother. Like the Aquarium's two adult otters, Neuse and Pungo, Eno was named for a North Carolina River.

Eno arrived at the Aquarium at the tender age of one month. Because otters don't usually leave their den until at least two months of age, Eno still needed a lot of care. Weighing only about two pounds, the baby otter was bottle-fed every four hours around the clock until he was old enough to begin eating fish.

and his seemingly endless appetite. Following the veterinary seal of approval, Eno was introduced to the 16,000-gallon otter exhibit. Initially, because of his small size, he was put on display by himself and quickly began chasing goldfish in the exhibit's chilly pools.

River otters demonstrate dominance within their social groups, so introducing Eno to Neuse and Pungo was a delicate process. Introductions took place over many weeks, starting with allowing the otters to hear and smell each other, then gradually allowing them to meet visually through a protective window.

When Eno was finally big enough to keep up with the active playtime sessions of the full-grown otters, they were slowly introduced one by one. After several days of closely monitored interaction, Eno was able to join his counterparts in the exhibit. Today, all three can be seen frolicking, wrestling and napping daily!



Photo by Pat McNeese

*Eno learns to swim.*



Photo by Julie Powers

*Upon his arrival, Eno was estimated to be about a month old.*





# Aquarium Gets New Ride

By Amy Kilgore, Public Relations Coordinator

Thanks to a generous grant from the Community Foundation of Southeastern North Carolina and the NC Aquarium Society, the Aquarium at Fort Fisher has a new set of wheels. The foundation's \$15,000 donation, along with \$55,000 raised by the Society, helped purchase a new Outreach Program vehicle.

Outreach Programs present hands-on activities to schools, libraries, camps and community groups around the state. The programs highlight aquatic animals found in North Carolina waters. However, unlike loading up your pet for a trip to the in-laws, the Aquarium transports animals such as sea stars, hermit crabs, sea turtles and alligators. This tends to complicate road trips a bit. The new vehicle will make traveling much easier and safer for the animals and their caretakers.

The new vehicle contains a life support system and a ramp for loading and unloading. It can also operate on diesel or biodiesel fuel. These modifications will allow Aquarium educators to travel longer distances and introduce more students and communities to our state's many fascinating aquatic animals.



Photo by Amy Kilgore

Steve Dillon of the Community Foundation of Southeastern North Carolina presents a check to Aquarium Director Donna Moffitt (center) and Outreach Coordinator Dee Rudolph.



Photo by Buster Nunemaker

## Shark Gets New Digs

By Buster Nunemaker, Public Relations Coordinator

There's a new kid on the block at the Aquarium on Roanoke Island.

*Ginglymostoma cirratum*, a nurse shark, outgrew its comfort zone at the Virginia Living Museum. Thanks to a national exchange network among zoos and aquariums, the shark was transferred to the Aquarium, where it would reside with relatives more its own size, such as sand tiger and sandbar sharks.

After the standard quarantine and veterinary check-up, the 6-foot shark was introduced into the 285,000-gallon *Graveyard of the Atlantic* exhibit.

Monitoring of the new addition was under the watchful eye of Aquarist Heather White. "He's extremely smart," said White, "and he had to learn how to be target fed, a process using a long pole to place food in front of the shark to make sure everyone gets a fair share."

## Through the Lens

The 2008 NC Aquariums' Amateur Underwater Photo Contest is under way. Amateur and non-professional photographers are encouraged to enter their best shots in the annual contest. No entry fee is required. Deadline for this year's entries is Dec. 31, 2008. Winners will be announced on or before March 31, 2009. The contest is sponsored by East Carolina Bank.

The Aquariums stage the contest to highlight the state's rich aquatic resources, and to recognize excellence in amateur photography.

Cash prizes are awarded in three categories, including Aquatic Life in the NC Aquariums. Entries by divers must be taken in waters off North Carolina, or within the state's freshwater systems. Winning photos are published here in *Aquarium News* and posted on the Aquariums' website.

For complete contest rules and entry application, or to view last year's winning entries, visit [ncaquariums.com](http://ncaquariums.com).



Photo by Paul Gray



# Gators in Training

By Lori Watkins, Aquarist/Herpetologist

Who would think that the American alligator (*Alligator mississippiensis*), with a brain the size of a lima bean, would have the ability to learn, or better yet be trainable?

At the Aquarium on Roanoke Island, alligators have been trained to ensure both animal and keeper safety. "Target" training, in which the alligator follows a target pole to a desired location, has proved to be very effective. It's used to direct the animals to individual feeding stations, or to specific areas when the staff needs to enter the exhibit for maintenance. It's also the technique used to direct the alligators onto scales to be weighed.



Photo by Andrea Bell

*Alligator training helps ensure the safety of both animals and caretakers.*

Hand signals and verbal cues are another training technique. This process begins with a command such as "hold" or "open," to instruct the alligators to maintain a position, or to open their mouths for feeding. This is followed by the verbal cue "bridge." This lets the animal know it followed the command correctly. Its reward is a tasty treat. Such training techniques are especially important when the alligators require examination by keepers or veterinarians.

Since the Aquarium staff began training these large reptiles, aggression between exhibit animals has been eliminated, and aggression toward keepers has become almost non-existent. Weekly public feeding programs demonstrate to visitors that reptiles *do* have the ability to learn!



Photo by Kelley Rodill

*In the wild, alligators may eat only once or twice a week during hot weather.*

## A Slithery Spectacular

By Amy Kilgore, Public Relations Coordinator

Reptiles and amphibians were the stars of the show during "Scales and Tales" at the Aquarium at Fort Fisher. The popularity of the day-long event calls for an encore performance in March 2009.

During this year's slithery spectacular, specially designed programs allowed visitors to get a feel for dozens of species of reptiles and amphibians, as well as talk to experts about these fascinating but sometimes frightening cold-blooded creatures.

"By interacting with live specimens and experts in the field, we hope visitors will gain a better appreciation and understanding of these animals, and be inspired to take steps to protect them," said Peggy Sloan, education curator.

Reptiles and amphibians are important links in maintaining a healthy environment, because their diets include insects and small mammals such as rodents.



Photo by Claire Aubeil

*Youngsters get a feel for a docile cornsnake.*



## Fossil Exhibit Revamped

By Kitty Dough, Media Technician, and Buster Nunemaker, Public Relations Coordinator

For years, the modest fossil exhibit at the Aquarium on Roanoke Island consisted of a small depression tucked away on the soundside. Today, after an extreme makeover, the exhibit commands a much more prominent position.

The new *Fossil Hunt* measures 16 feet in diameter and is surrounded by an attractive circular wall. Its centerpiece is a towering, 5½-foot tall, fiberglass Megalodon shark tooth.

Handy trowels are available for digging through the 20-million year old fill material. The fill is supplied by PCS Phosphate in Aurora, NC. Eye-catching graphic panels feature fun facts, photographs and illustrations. Be sure to allow time to do some fossil sleuthing on your next Aquarium visit!



*Fossil hunters get to keep their finds.*

Photo by Shannon Kemp, courtesy Carteret County News-Times

Photo by Buster Nunemaker

Logan Headington raised more than \$250 for shark conservation.

## Funds for Fins

By Claire Aubel, Public Relations Assistant

Logan Headington, one of the Aquarium Society's younger members, recently caused quite a frenzy over sharks. The 6-year-old says his love of sharks started as a toddler with visits to the Aquarium at Pine Knoll Shores, and he plans to someday become a shark scientist.

While watching Discovery Channel's 2008 "Shark Week," Logan learned of a program called Adoptashark. The Adoptashark initiative is part of Iemanya Oceanica, a nonprofit shark conservation organization.

Wanting to raise awareness of the number of shark species in peril, Logan put together an educational poster and hit the road on a campaign to adopt one shark: price tag \$50.

He visited surf shops and fishing charter businesses in Atlantic Beach. By the end of his first day, he had collected enough money to adopt three sharks. The next morning, Logan awoke to find donations left on his doorstep anonymously. He eventually raised more than \$250 – enough funds for five adoptions.

Unfortunately, Logan's fundraising had to come to a halt. He had to put his campaign on hold to enroll in first grade.



Photo by Buster Nunemaker

## Helping Hand

By Kitty Dough, Media Technician

Twelve-year-old David Wilcox knows a thing or two about fossilized shark teeth. He has hundreds of them in his collection. David is part of the Aquarium family on Roanoke Island. His parents, Beth and Tony Wilcox, work at the Aquarium.

When David heard the Aquarium was going to redesign its outdoor fossil exhibit, he offered to loan his marine fossil collection to help develop the exhibit's new graphic panels. He carefully sorted and organized his specimens, and assisted the exhibit staff in photographing several items. The photographs will help other fossil enthusiasts identify the treasures they unearth in the new hands-on *Fossil Hunt*.



# SEA SHELL SECRETS

By Mark Joyner, NC Aquarium Society



Photo by John Mauser

Whelks, often misidentified as conchs, are relentless hunters. Clams are a favorite prey.



Photo by Wayne Justice

*Clams – quahog (left), sunray Venus (center), lucine*



Photo by Wayne Justice

*Moon snail, also called shark eye*

Most, but not all, live in the sea, and their blood is rich in dissolved calcium. Excess calcium is crystallized into the hard shell that grows layer by layer throughout the animal's life.

The two largest classes of mollusks are the bivalves, like clams with two hinged shells, and the univalves with one shell, such as whelks and moon snails. Between the two exists a never-ending battle of predator and prey.



Photo by Sherry White

*Lettered olives*

What could be more beckoning than a stretch of beach littered with sea shells cast up by a storm? The beachcomber in each of us delights at the thought, knowing that among the seaweed and driftwood may well be a few of the ocean's real treasures – perfect shells from the ocean's depths. They've been admired and eagerly collected throughout history, yet even today most of us know little about the animals that create these wonders of nature.

These are the mollusks, the word itself meaning "soft bodied," and suggesting why a hard covering is needed for protection. Most, but not all, live in the sea, and their blood is rich in dissolved calcium. Excess calcium is crystallized into the hard shell that grows layer by layer throughout the animal's life.

The clam for instance leads a settled life filtering plankton from seawater, while the whelk is busily hunting him. Once contact is made, the clam is doomed, as the whelk uses its own shell like a knife blade to

open and feed upon its victim.

Not all bivalves are as helpless. Scallops swim well enough to be considered the only migratory bivalve. All that exercise produces the very delicious, prized muscle on your dinner plate. Unfortunately, scallop populations have been seriously diminished by the overfishing of sharks. Sharks feed heavily on rays, which are a major predator of scallops. With shark populations in decline, rays have been free to nearly decimate scallop beds.

The moon snail has perfected a feeding technique of its own – drilling a hole through the shell of its catch with the help of a drop or two of acid. This could take hours, but what's time to a snail? Their success rate is indicated by all the washed up shells bearing a single round hole. And don't overlook the carnivorous habits of the beautiful lettered olives that feast on the colorful coquina clams at the surf's edge. Their secret weapon is a paralyzing mucus.

Mollusks demonstrate a variety of life forms, perfectly adapted to their watery domain. They've evolved tactics for survival in the seas over hundreds of millions of years, making them one of the largest groups of animals on Earth, second only to insects. We're far from knowing all there is to know about sea shell secrets and what lives in the uncharted depths of the world's oceans, but a great place to start might be a storm-tossed winter beach.



Photo by Sherry White

*Carnivorous snail victims*



*Coquinas feeding*

(The original and lengthier version of this article appeared in the August 2008 issue of Wildlife in North Carolina.)





# Winter at the Aquariums

With the exception of Thanksgiving and Christmas holiday weeks, visitor attendance slows at the Aquariums in winter. Off-season opportunities give visitors a chance to take part in hands-on programs that often fill quickly during summer months.

In-house programs, such as live animal presentations, discovery classroom activities, live dives, and animal feedings, are offered year round, and are free with paid admission. Special Activity

programs, such as birding trips, craft programs,

seafood cooking classes, surf fishing workshops and winter camps for kids are also available, and require advance registration and a fee.

To take part in a Special Activity at your favorite Aquarium, visit [ncaquariums.com](http://ncaquariums.com) and check the interactive calendar. It lists details about each activity, and more information is available on the Programs and Events page. Register as far in advance as possible. For questions and to register, call your selected Aquarium: Roanoke Island 252-473-3493 or 1-866-332-3475; Pine Knoll Shores 252-247-4003 or 1-866-294-3477; Fort Fisher 910-458-8259 or 1-866-301-3476.



Photo by Wayne Justice



Photo by Buster Nunemaker



Photo by Beth Wilcox



Photo by Sherry White







# Underwater Gardener

By Amy Kilgore, Public Relations Coordinator

For Aquarist Mike Suchy, gardening is a passion. It's not surprising, then, that his love for growing things, combined with his strong interest in coral reefs, spawned an intriguing project at the Aquarium at Fort Fisher. By snipping fragments of existing corals, mounting them on small disks and submerging them under water with a light source, Suchy began "growing" coral.

"It's much like taking a cutting from a plant and potting it up," said Suchy. "Light is of paramount importance to corals, and a moving light source is more natural."

Coral growth rates vary, depending on variety, but tend to be slow, sometimes only a few inches a year. Reef-building corals contain symbiotic algae within their tissues that convert light energy into a food source. This helps provide sustenance for the coral colony. Temperature, pH, and salinity need to be constant. "Sometimes it's difficult to explain why one colony thrives and another withers in what appears to be identical conditions," said Suchy.

Live coral reefs are among the most popular attractions in public aquariums and offer an important educational opportunity. In today's world, climate change is a hot topic and coral reefs are one of the habitats most greatly threatened.

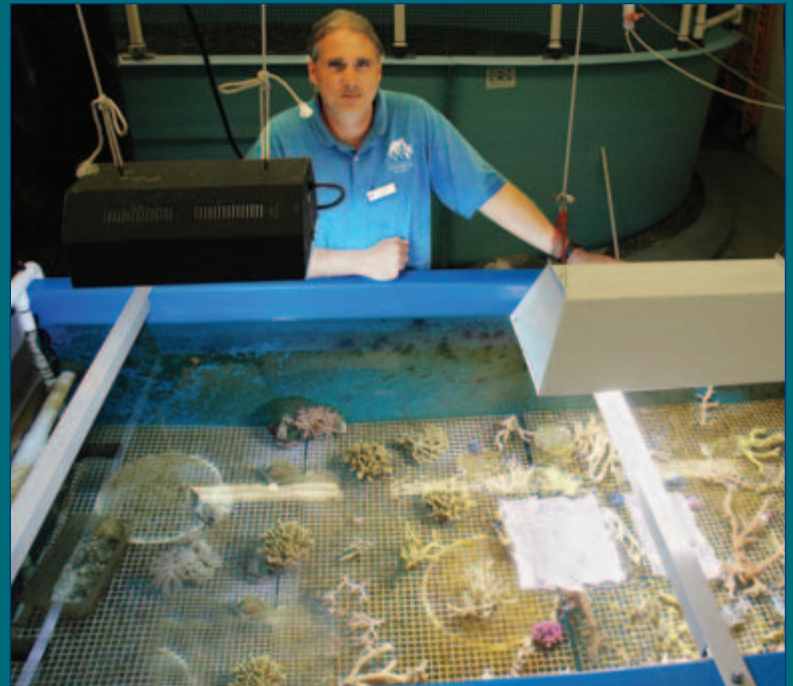


Photo by Amy Kilgore

Overhead lights reflect off Aquarist Mike Suchy's coral garden. Temperature, pH, salinity and dedication are key elements to cultivating this temperamental marine life.

"We received many coral colonies from other institutions when we first started out, so it would be nice to return the favor," said Suchy. "If our efforts work, we can potentially supply coral to other aquariums, and by sharing cultured colonies we can reduce the removal of colonies from wild stocks."

# Science on a Sphere

By Dia Hitt, Educator

The Aquarium on Roanoke Island received a grant from the National Oceanic and Atmospheric Administration (NOAA) for the new exhibit, *Science on a Sphere: Bringing the Oceans to You*.

The innovative display features a 5-foot, spherical interactive Earth, with a focus on storms, oceans, and how humans impact the planet. Visitors will see the oceans in an entirely new light, as they dive to the sea floor, track hurricanes and ride ocean currents.

Aquarium staff attended the "Science on a Sphere" conference, where they viewed two spheres in action. They returned with many ideas on how to make the new exhibit a special experience for Aquarium visitors. Be sure to check out our Earth on your next visit!



Photo by Rick Eller





# Edge of the Sea

By Joe Malat, Director, Aquarium on Roanoke Island

The cast net flew from my hand, flared open and settled over the target. Seconds later, as I slid the net up on the beach, the catch was revealed: a handful of small silvery mullet, some eelgrass and a tiny blue crab. When the net was opened, the mullet flipped wildly on the sand, but the crab scurried quickly on a sideways run for freedom.

No worries, we had our prizes. My granddaughter Blaize and I responded immediately. I scooped up water in a small bucket and she carefully put each of the fish into their temporary home. We watched the fish and the other residents of our on-the-beach aquarium. A few minutes earlier, at the edge of the surf, we had excavated three mole crabs and a dozen coquina clams from the damp sand. They were now living together in the bottom of a cardboard coffee cup.

While Blaize gazed intently into the containers and held one of the mole crabs in her tiny hand, I shared a bit of information about each of our specimens. Blaize listened and learned, and while I was talking she put the crab down on the beach. Digging furiously, it disappeared into the sand.

Suddenly her five-year-old attention span waned and she blurted, "Papo, let's let them go and look for shells." Okay, it was time to move on.

This is what the Aquariums do – every day – for so many people. Whether it's on the beach, in the salt marsh, in a classroom or in front of a massive exhibit, Aquarium staff members bring animals



Photo by Joe Malat

*A mole crab is one of Blaize's finds at the edge of the sea.*

and people together. They capture the interest and imagination of those who may not have had the opportunity to experience what Blaize and I have come to take for granted. The Aquarium staffs have a special gift and I appreciate their talents, dedication and enthusiasm for what they do so very well.



Photo by Wayne Justice

*A right whale passes near shore off Bogue Banks during an "Onboard Collection Cruise."*

## Ocean Perspectives

Why are marine mammal strandings common events along our beaches?

The Aquarium at Fort Fisher teamed up with the Cape Fear Museum of History and Science in Wilmington to address this question in the informative series, "Ocean Perspectives." The series was designed to explore aspects of our local ocean from unique viewpoints.

The final program, "North Carolina's Endangered Whales," is set for Dec. 9 at 6:30 p.m. in the museum's Williston Auditorium. UNC-Wilmington researchers and marine mammal experts, Ann Pabst and Bill McLellan, will discuss whale migration and why our coastal waters are a critical habitat for these threatened and endangered species.

The Dec. 9 program is free and open to the public. For reservations or more information, call 910.798.4362.





## Diamonds in the Rough

By Heather Broadhurst, Aquarist

Turtles are some of the most popular animals at the Aquariums, and the lesser known diamondback terrapin is no exception.

Smaller than sea turtles, terrapins are the only aquatic turtles in North America to live in brackish marsh waters found in coastal habitats along the East Coast. Two of the seven subspecies of terrapins are found in North Carolina – the Northern and the Carolina diamondback.

Diamondbacks are well known for the beautiful markings on their shells and skin. Their unique appearance makes them appealing as possible pets, however, diamondbacks don't make good pets for many reasons. They have specific needs, and more importantly, state laws protect them as a "species of special concern."

The exact number of terrapins in North Carolina is unknown. They were once highly prized for their meat, and overharvesting caused a severe decline in their numbers. Today, these charismatic animals face new challenges. Many females are injured each year while attempting to cross roads to lay eggs, and habitat destruction and pollution are even greater threats.

Commercial and recreational crab pots are also serious problems. Attracted by the bait, terrapins crawl into the pots. Because they are



Photo courtesy Emmett Westbrook, FotoFX

*Diamondback terrapins were nearly brought to extinction a century ago, when they sold for nearly a dollar an inch. Their sweet meat was made into exotic soup.*

air breathers, they drown when they are unable to get out. Researchers are studying the effectiveness of Terrapin Excluder Devices (TEDS) that can be added to crab pots to decrease terrapin mortalities.

If you find a terrapin crossing a highway, relocate it to a marsh area, which is probably nearby. And remember, helping keep waterways and shorelines free of litter and pollution helps all coastal marine life.

## Year of the Frog

Things were hopping at the Aquariums this summer – literally. The Aquariums joined the Association of Zoos and Aquariums (AZA) in 2008 in celebrating "Year of the Frog."

The stars of the festivities were frogs, toads and salamanders. To spice things up, the Aquariums included habitat neighbors, such as alligators, snakes and lizards. More than 200 programs, including films, games, contests, live animal programs and outdoor activities brought to light the antics and interesting facts about these elusive animals.

In the science community, amphibians are known as an "indicator species" and have been compared to canaries in the coal mine. Just as miners used sensitive canaries to warn them of toxic gases in the mines, the absence or presence of amphibians tells us much about the health of our environment. Possible extinction threatens many of the world's 6,000 known amphibian species.



Photo by Claire Aubel



## Reef Relief!

The Aquarium's efforts toward oyster habitat conservation is going strong.

At the Aquarium at Pine Knoll Shores, the under-dock oyster gardening project continues. It now serves as a live education exhibit for Special Activities, and as a support resource for university researchers and citizen gardeners.

The project saw significant expansion in June. Several staff members came out for a morning of fun in the sun to create a backyard oyster reef near the Aquarium dock. Clean oyster shell was deposited on shade cloth to make an unsinkable substrate. Live cultch – shell material with live oysters attached – was placed atop the clean shells. Staff checked the reef

in July and found baby oysters, called spat, had landed.

"The reef, along with our 'portable oyster reef in a basket' hanging off the dock, provides instant opportunities for field education," said Pat McNeese, Aquarium conservation and research coordinator. "We're continuing to build up the reef by depositing live oyster clusters culled from our shellfish cages."

Staff members also came together to create the first-ever artificial eco-disk oyster reefs. Four eco-disks, which are large, cement disks embedded with cleaned oyster shells, were placed along the rock sill near the dock just in time for spatfall. With



Photo by Pat McNeese

*Staff members Erica Alvarado (left) and Tia Reigner shucked their uniforms to help create an oyster reef in Bogue Sound.*

assistance from Discovery Diving and Bogue Banks Marine Construction, the reefs were created using cement and clean oyster shell.

## A 'Toad-al' Success

*By Amy Kilgore, Public Relations Coordinator*

Last spring, the Aquarium at Fort Fisher helped kick off an unusual pilot program – "Amphibians in the Classroom." The program involved seven area schools and was designed to foster a sense of environmental stewardship while creating a better understanding of amphibians and the environment.

Southern toad eggs were collected in Watha, NC, and delivered to classrooms. Aquarium education and aquariology staffs set up small aquariums and talked with youngsters about the life cycles of toads and how to care for the developing young.



*Tiny toads were returned to their native habitat.*

With assistance from their teachers, plus an extensive fact sheet from the Aquarium, students monitored the development of their toady charges. It wasn't long before they were watching tanks filled with wiggling tadpoles! Eight weeks later, students released their Southern toads in the area where the eggs were collected.



Photos by Mike Spencer, courtesy of Star-News

*Teacher Meghann Crow and students of Rachel Freeman School of Engineering prepare to release their baby toads.*

"Collaboration and support among Aquarium staff, classroom teachers, and state fish hatchery personnel in Watha made the pilot program a success," said Peggy Sloan, education curator at the Aquarium.

Plans are under way to offer the program again next year, with partial support from the Cherbec Advancement Foundation.





## 'Show Us Your Fish Face'

The Aquariums recently launched a new campaign – **ShowUsYourFishFace.com**, a fun, dynamic Web site created in partnership with MSA, an ad agency based in Research Triangle Park. Show Us Your Fish Face serves as a memorable, self-perpetuating means of directing fans to the hub of Aquarium news and information.

The site invites viewers to submit photos of their best fish faces, which are then rated

by other Web site visitors, for a chance to win prizes sponsored by the Aquariums. Participants will receive a Fish Face ID card that can be redeemed for a prize at any Aquarium. The site's highest, most frequently-rated fish faces will be entered into judging for a monthly prize: an Aquarium gift basket worth \$25. Once a year, a Web site visitor will win a beach vacation and free family membership to the Aquarium of his or her choice.

The goal of Show Us Your Fish Face is to promote the Aquariums in a unique and interactive way. Members may choose to receive updates and e-newsletters, and will be encouraged to invite others to the site by emailing their own fish face creations. We encourage you to check out the new site and join the fun!

To submit your own fish face and spread the word about this exciting new promotion, visit **ShowUsYourFishFace.com**.

## An Ocean of Experience

*By Laurie Streble, Outreach Coordinator*

This summer, more than 70 middle school girls explored various careers in marine arts and sciences in a day designed especially for them.

The Aquarium at Pine Knoll Shores partnered with the NC Maritime Museum in Beaufort to sponsor "Ocean Girls' Day," filling the agenda with programs to introduce girls ages 10 to 12 to marine careers. Aquarium instructors, volunteers and women mentors from the local community led a wide variety of indoor and outdoor activities for the participants and their chaperones.

The morning commenced with a career panel of women scientists, educators and business owners, who gave first-hand accounts of their jobs in the field. The girls also interacted with mentors from the local marine community at career exhibit booths set up throughout the Aquarium. In the afternoon, outdoor activities included barrier island explorations and kayaking led by Pirate Queen Paddling.

The event was sponsored in part by a grant from the Carteret Community Foundation, and modeled after the "Girls in Science Day" held at the South Carolina State Museum. The day was designed to introduce young women to marine-related careers and promote the Aquarium's mission of inspiring appreciation and conservation of North Carolina's aquatic environments.



*Girls ages 10 to 12 got their feet wet in a series of activities during "Ocean Girls' Day."*

Photo by Nate Bachelor

# Happy Trails

By Pat McNeese, Conservation and Research Coordinator

A \$5,000 grant will fund new interpretative signs on the Hoffman and Roosevelt Trails at the Aquarium at Pine Knoll Shores. The NC Trails Committee awarded the Aquarium Society the grant from the NC Division of Parks and Recreation Adopt-A-Trail Program.

The Aquarium requested the funding to provide visitors with trail signs that promote understanding of the local environment, relationships to Aquarium exhibits, and the relationship to other state and local trail units. Both the Hoffman and Roosevelt trails are stops on the NC Birding Trail.

Durable new signage will highlight habitat features of the maritime forest and marshes, as well as sights, sounds and individual species visitors may encounter. The signs will also replace hand-carried guides to the Hoffman Trail, reducing waste and litter.

"The Aquarium Society's willingness to act as grant applicant for conservation projects has really helped our ability to stretch precious conservation dollars and create effective projects," said Georgia Minnich, exhibits curator.

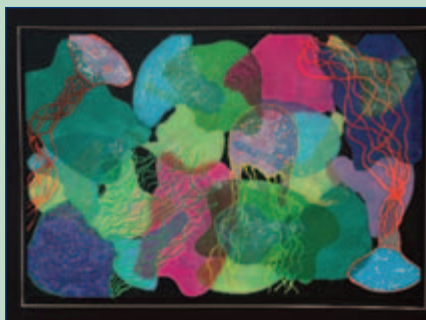


Photo by Wayne Justice

*Thanks to a grant, visitors will learn more about maritime forests on walks along nature trails at the Aquarium at Pine Knoll Shores.*



Chelsea Finical, age 17



Jan Fahlbusch, age 14

## Young at Art

As a member of Coastal America, the Aquarium at Fort Fisher was delighted to accept submissions for Coastal America's recent Ocean Art Contest. Some twelve other facilities collected entries, totaling approximately 1,500 pieces overall. The Aquarium at Fort Fisher alone accepted 121 pieces of students' work.



Ansley Nurkin, age 8

Of the 1,500 entries, three North Carolina students were selected as national finalists. Winners were 14-year-old Jan Fahlbusch of New Bern; 17-year-old Chelsea Finical of Grimesland; and 8-year-old Ansley Nurkin of Charlotte. Their work will be displayed at the Smithsonian's National Museum of Natural History in Washington, D.C.

Open to students from kindergarten through university levels, the contest encouraged participants to use their creativity and artistic talent to express the importance of our oceans, both personally and globally. Guidelines required that artwork reflect one of seven established "essential principles of ocean literacy," and include a narrative explaining the piece. Categories were defined by grade levels, and regional winners were sent to Washington, D.C., to compete nationally.





# If It's Not Habitat, Just Skip It!

By Pat McNeese, Conservation and Research Coordinator

When it comes to research, you can't just wing it.

When an unusual butterfly species inspired a scientific study, staff members at the Aquarium at Pine Knoll Shores took to nearby dunes with nets and notebooks. They joined NC State University (NCSU) researcher Allison Leidner in conducting a "mark and recapture" study that could provide clues about how beach development affects the movements of a seldom-seen skipper (*Atrytonopsis*) butterfly.

Leidner has been studying a species she calls the "crystal skipper" (*Atrytonopsis loammi*), because it appears to be unique to the Crystal Coast. She's been charting the distribution and habits of this skipper in its preferred habitat on Bogue Banks, including on Aquarium property.

Aquarium employees volunteered their time and joined NCSU students to catch butterflies, label them with location numbers, and record recapture locations during two spring weekends. The butterflies appear for about 30 days from mid-April to mid-May, and again for about 30 days from mid-July to mid-August.



Photo by Randy Newman, courtesy of NC Division of Parks and Recreation

Aquarium staff members helped track the movements of a butterfly that might be unique to the island of Bogue Banks, home of the Aquarium at Pine Knoll Shores.

During initial observations, the crystal skippers seemed to move across intact habitat and low-intensity development areas more often than through areas of high-intensity development.

Properties with intact dune vegetation appeared to provide excellent habitat for the skipper and its primary host plant, seaside little bluestem (*Schizachyrium littorale*). This plant is currently being cultivated from seed at the Aquarium for dune restoration projects planned for the near future.

## Celebrity Pays a Visit

By Buster Nunemaker, Public Relations Coordinator

A special surprise awaited visitors during Family Night at the Aquarium on Roanoke Island this summer – particularly if you were a baseball aficionado. Hall of Fame pitcher Gaylord Perry made a guest appearance and, to the delight of fans, happily autographed baseballs, bats and baseball cards.

In support of his friend of more than 50 years, Al Foreman, former major league umpire, was also present. Perry and Foreman exchanged verbal jabs, as Perry complained that his strike zone

should have been bigger during their playing days in the major leagues.

Perry won 314 games, pitched 3,534 strikeouts – and a no-hitter in 1968 against Bob Gibson of the St. Louis Cardinals. He also won two Cy Young awards, one in the National League, the other in the American League. Foreman said of Perry, "He's been a great friend, and he's one of the best players I ever had the pleasure to work with." Perry was inducted into the Baseball Hall of Fame in 1991.



Gaylord Perry (left) and Al Foreman enjoyed verbal jousting during Family Night at the Aquarium on Roanoke Island.



# Focus on Amphibians

By Chris Carlin, Volunteer Coordinator



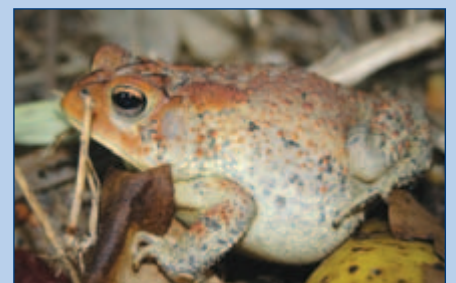
Volunteer Coordinator Chris Carlin (left) congratulates volunteer Kevin Geraghty.

Photo by Claire Aubel

Volunteers at the Aquarium at Pine Knoll Shores leaped into action for a Year of the Frog Amphibian Photo Contest. Recognizing the wealth of talented photographers among its ranks, the volunteer office sponsored the competition.

Volunteers waded through ponds, hiked woods and followed the chorus of croaking creatures in pursuit of a winning shot. While the salamanders and newts eluded them, several species of frogs and toads were captured in beautiful photographs.

Kevin Geraghty of Emerald Isle took first place with his Southern toad. Dick Barmore of Arapahoe took second with his green tree frog. Barmore also scored an honorable mention for a pinewoods tree frog, and Alex Houston of Beaufort won an honorable mention for a cricket frog at sunset.



Kevin Geraghty captured a great shot of a Southern toad.



Photo by Emmett Westbrook, Foto FX

Sometimes it's hard to make heads or tails of marine creatures. This new sargassum fish (right) faces its resident tankmate – a seahorse. Can you find the fish's eye?

## New Tankmate

By Heather Broadhurst, Aquarist

A new addition to the Seahorse exhibit at the Aquarium at Pine Knoll Shores has piqued the curiosity of visitors. The new tankmate is a sargassum fish (*Histrio histrio*), named for the seaweed in which it hides.

Sargassum beds trail in large masses in the Gulf Stream. This floating habitat is an important refuge for many kinds of juvenile animals, including hatchling sea turtles, and provides shelter and feeding opportunities for many other creatures.

Sections of yellowish-rubbery sargassum, complete with marine communities, are occasionally blown into inshore waters. These dislodged weed clusters sometimes wash onto beaches, carrying their resi-

dents – marine snails, starfish, seahorses, pipefish and even sargassum fish.

Sargassum fish are masters of camouflage. Their coloring and fleshy tabs blend with the seaweed, allowing them to ambush their food. These frilly fish measure on average a mere four-and-a-half inches in length, but can reach as much as eight inches in length. They are ambitious hunters and sometimes try to consume animals equal to their own size!

As part of the anglerfish family, sargassum fish have an extra frilly appendage on their head, called an illium, that can be used to attract or lure prey. They also have prehensile fins that help them anchor themselves to the strands of sargassum.



Tinker's Butterfly fish



Bartlett's Anthias

Photos by Bob Griffin

## Hawaii's Fishes

Papahānaumokuākea National Monument, designated in 2006, is one of the world's largest protected marine areas. The Aquarium at Fort Fisher recently created a new exhibit showcasing reef fishes from these remote waters. Stretching 1,200 miles north of Hawaii, Papahānaumokuākea contains 140,000 square miles of pristine islands and reefs. More than half the fish species found among the atolls exist nowhere else.





# Name That Fish!

The ocean is filled with fascinating creatures, and new species continue to be discovered around the world. See how much marine animal trivia you know by taking the quick quiz below. Answers are at the bottom of the quiz.

## 1. This fish:

- is popular in aquariums because of its beautiful colors
- uses a long, sharp spine on its head to wedge itself into crevices
- is strong and aggressive, with well-developed teeth and powerful jaws
- feeds on mollusks, crustaceans and other ocean-floor animals



## 2. This fish:

- is named for its bovine facial features
- has a mouth on the underside of its body
- migrates long distances in huge schools
- has a venomous barb on its tail



## 3. This fish:

- is also called "convict" fish
- is known for stealing fishermen's bait
- is often found around piers and docks
- has strong teeth for grinding and scraping barnacles from rocks and pilings



## 4. This fish:

- was first discovered off our coast 2000, far from its native Indo-Pacific waters
- has spines in its fins that carry painful venom
- lives at depths of 80-300 feet
- uses lightning-fast suction to inhale and swallow its prey whole



## 5. This fish:

- uses its tail to anchor onto sea grasses and permanent objects
- uses its small mouth to suck up minute crustaceans, such as tiny shrimp
- is much used in traditional Chinese medicine, depleting its wild populations
- transfers its eggs from female to male, which gives birth to the young



Answers:

1. Triggerfish Photo by Julie Powers
2. Cownose stingray Photo by Jim Lanier
3. Sheepshead Photo by Ricki Lipscomb
4. Lionfish Photo by Vlad Pambucal
5. Seahorse Photo by Emmett Westbrook



# Join the NORTH CAROLINA AQUARIUM Family!



Photo by Sandy Smith

## Membership Application

Your membership provides crucial operational support to the North Carolina Aquariums. All three Aquariums have now completed exciting expansions with the additions of new exhibits, huge ocean tanks, and indoor habitats for aquatic wildlife ranging from otters to alligators. More than **ONE MILLION VISITORS** will enjoy the unique educational experiences offered by the Aquariums this year.

It doesn't hurt that Aquarium membership is also the best deal around. Families can enjoy **UNLIMITED FREE ADMISSION** at the Aquariums, as well as at the NC Zoo for just \$50 a year! What's more, our Aquarium members receive free admission at more than one hundred other zoos and aquariums all around the country.

Members also receive a free subscription to the award-winning *Aquarium News* magazine, as well as 10% discounts on Aquarium gift shop purchases and educational programs. Add in complimentary guest passes to share with friends, and an exclusive MEMBER tote bag for Donor level and above, and it's clear that membership definitely has its advantages.

## I. Choose a Member Category

- ☐ **Individual** (Benefits for one person) \_\_\_\_\_ \$30
- ☐ **Family** (Benefits for two adults and their children or grandchildren under age 18) \_\_\_\_\_ \$50
- ☐ **Donor** (Benefits with 4 guest passes and **exclusive MEMBER tote bag**) \_\_\_\_\_ \$100
- ☐ **Patron** (Donor benefits with 6 guest passes and 10% discount on Aquarium rentals) \_\_\_\_\_ \$300
- ☐ **Director** (Donor benefits with 8 guest passes and 10% discount on Aquarium rentals) \_\_\_\_\_ \$500
- ☐ **Benefactor** (Donor benefits with 10 guest passes and 10% discount on Aquarium rentals) \_\_\_\_\_ \$1,000

## II. Member Information

\_\_\_\_\_  
Name of 1st Adult

\_\_\_\_\_  
Name of 2nd Adult

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: ( ) \_\_\_\_\_

Email Address: \_\_\_\_\_

☐ Please check here if you wish to receive Aquarium updates by Email

Number of children or grandchildren under age 18: \_\_\_\_\_

I / We primarily visit the Aquarium at:

☐ Roanoke Island ☐ Pine Knoll Shores ☐ Fort Fisher

## III. Payment Information

Total Payment: \$ \_\_\_\_\_

Method: ☐ Check ☐ Visa ☐ Mastercard

(Please make checks payable to NC Aquarium Society)

Card Number: \_\_\_\_\_

Exp. Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Thank you for your support of the North Carolina Aquariums!

This application can be turned in at the Aquariums when you visit or mailed to the NC Aquarium Society, 3125 Poplarwood Ct., Suite 160, Raleigh, NC 27604.







At the Aquarium at Fort Fisher, a cuttlefish flashes its vibrant colors for Kimberly Sams. The photo was a front-runner in the NC Aquariums' 2007 Amateur Underwater Photography Contest.

NORTH CAROLINA  
AQUARIUM SOCIETY

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